FIG. 1

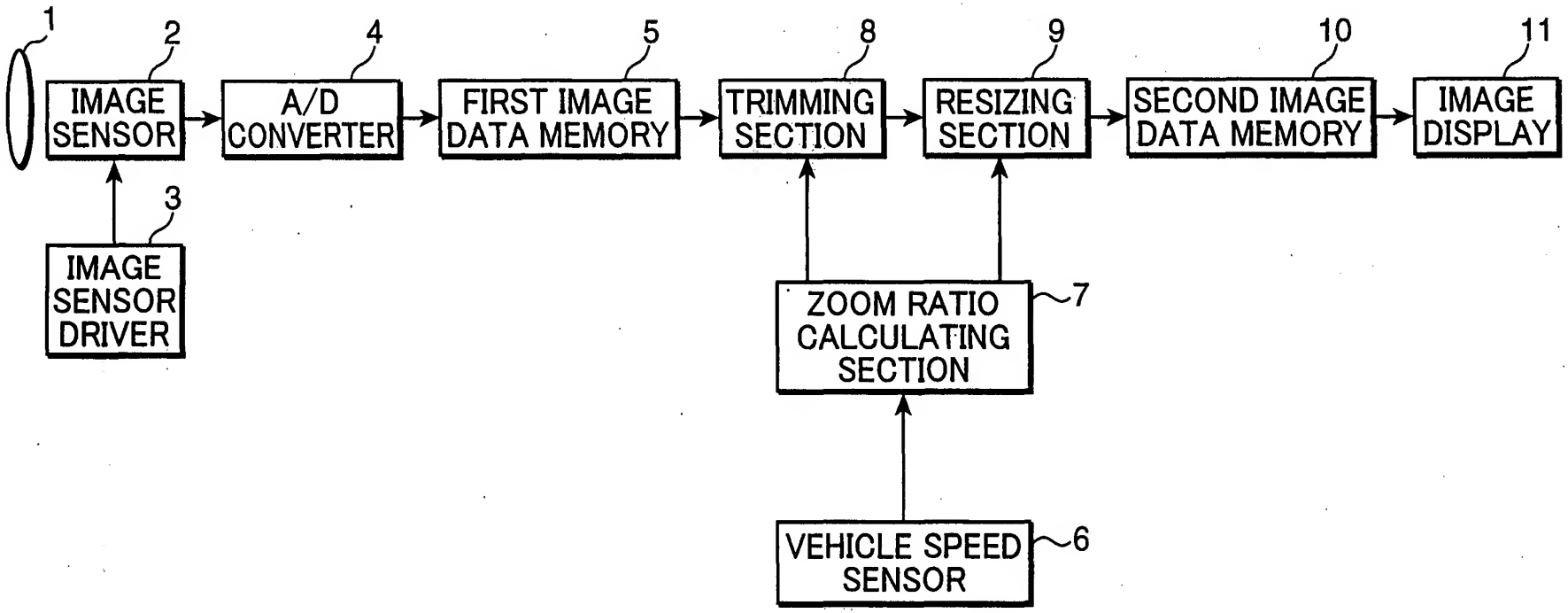

1
2
IMAGE SENSOR
4
A/D CONVERTER
5
FIRST IMAGE DATA MEMORY
8
TRIMMING SECTION
9
RESIZING SECTION
10
SECOND IMAGE DATA MEMORY
11
IMAGE DISPLAY
3
IMAGE SENSOR DRIVER
ZOOM RATIO CALCULATING SECTION
7
VEHICLE SPEED SENSOR
6

FIG. 2

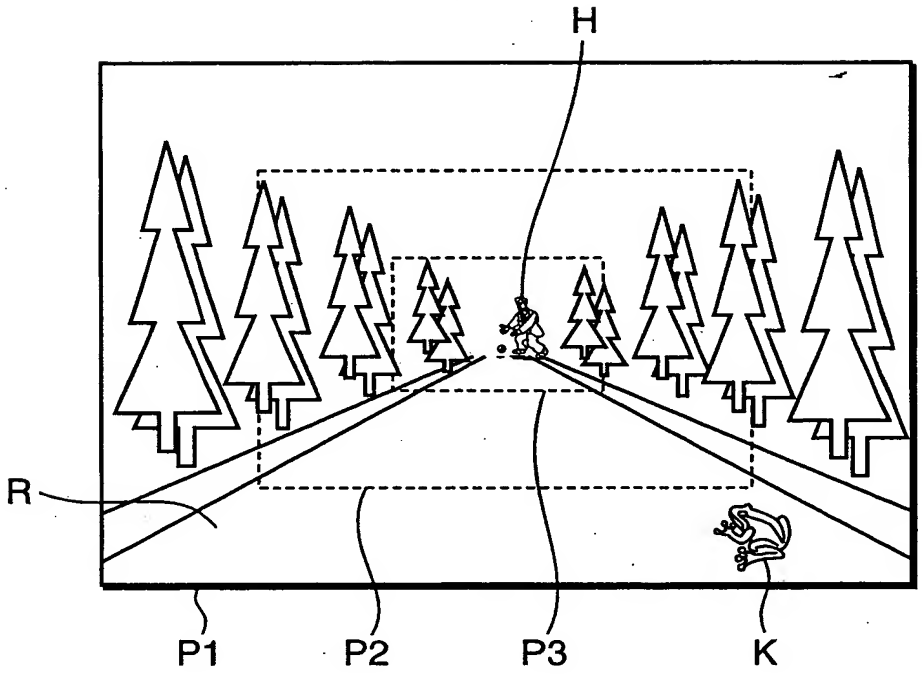


FIG. 3

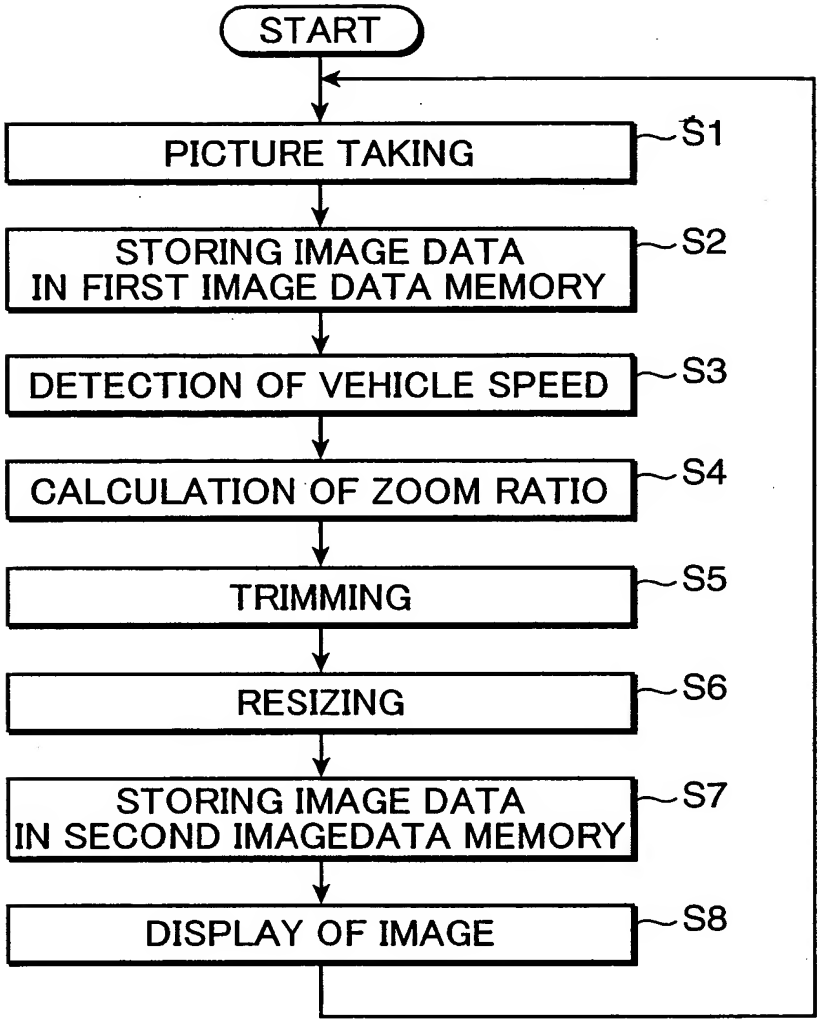

START
PICTURE TAKING
S1
STORING IMAGE DATA IN FIRST IMAGE DATA MEMORY
S2
DETECTION OF VEHICLE SPEED
S3
CALCULATION OF ZOOM RATIO
S4
TRIMMING
S5
RESIZING
S6
STORING IMAGE DATA IN SECOND IMAGEDATA MEMORY
S7
DISPLAY OF IMAGE
S8

FIG. 4

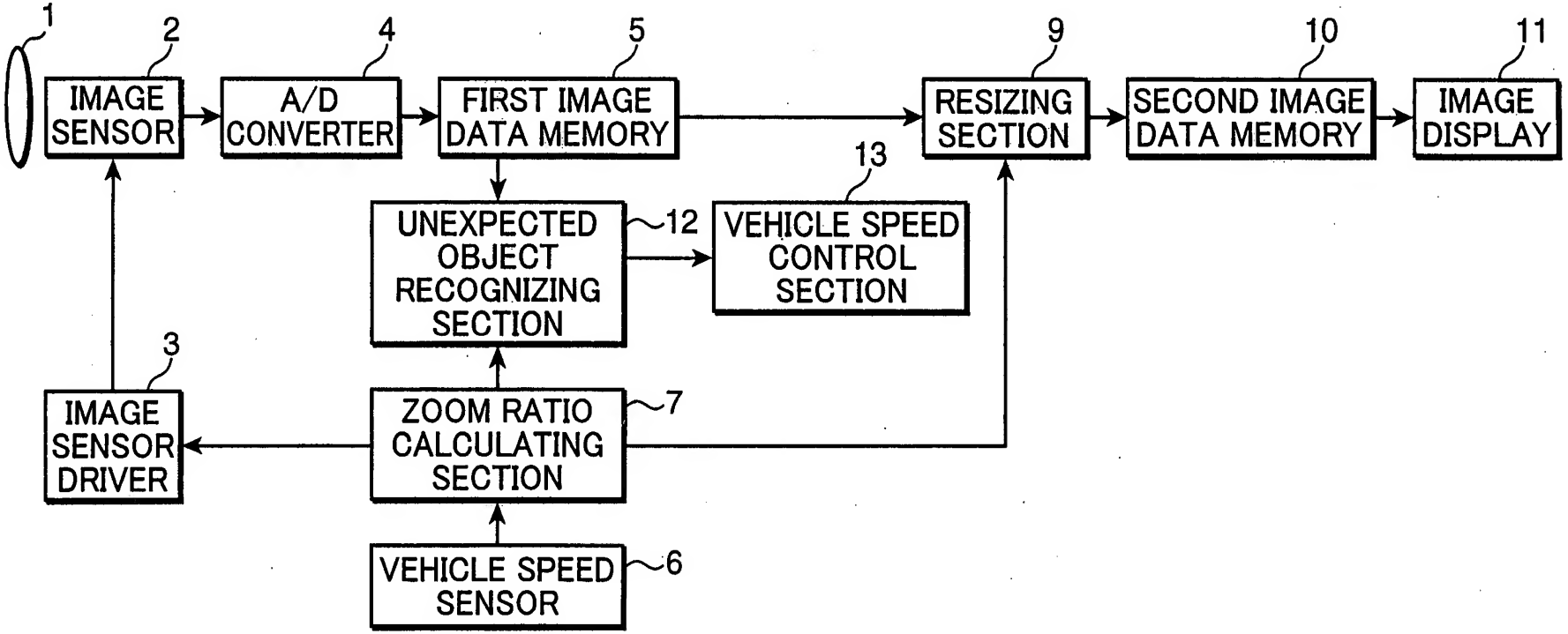

1
2
4
5
9
10
11
IMAGE SENSOR
A/D CONVERTER
FIRST IMAGE DATA MEMORY
RESIZING SECTION
SECOND IMAGE DATA MEMORY
IMAGE DISPLAY
13
UNEXPECTED OBJECT RECOGNIZING SECTION
12
VEHICLE SPEED CONTROL SECTION
3
IMAGE SENSOR DRIVER
ZOOM RATIO CALCULATING SECTION
7
VEHICLE SPEED SENSOR
6

FIG. 5

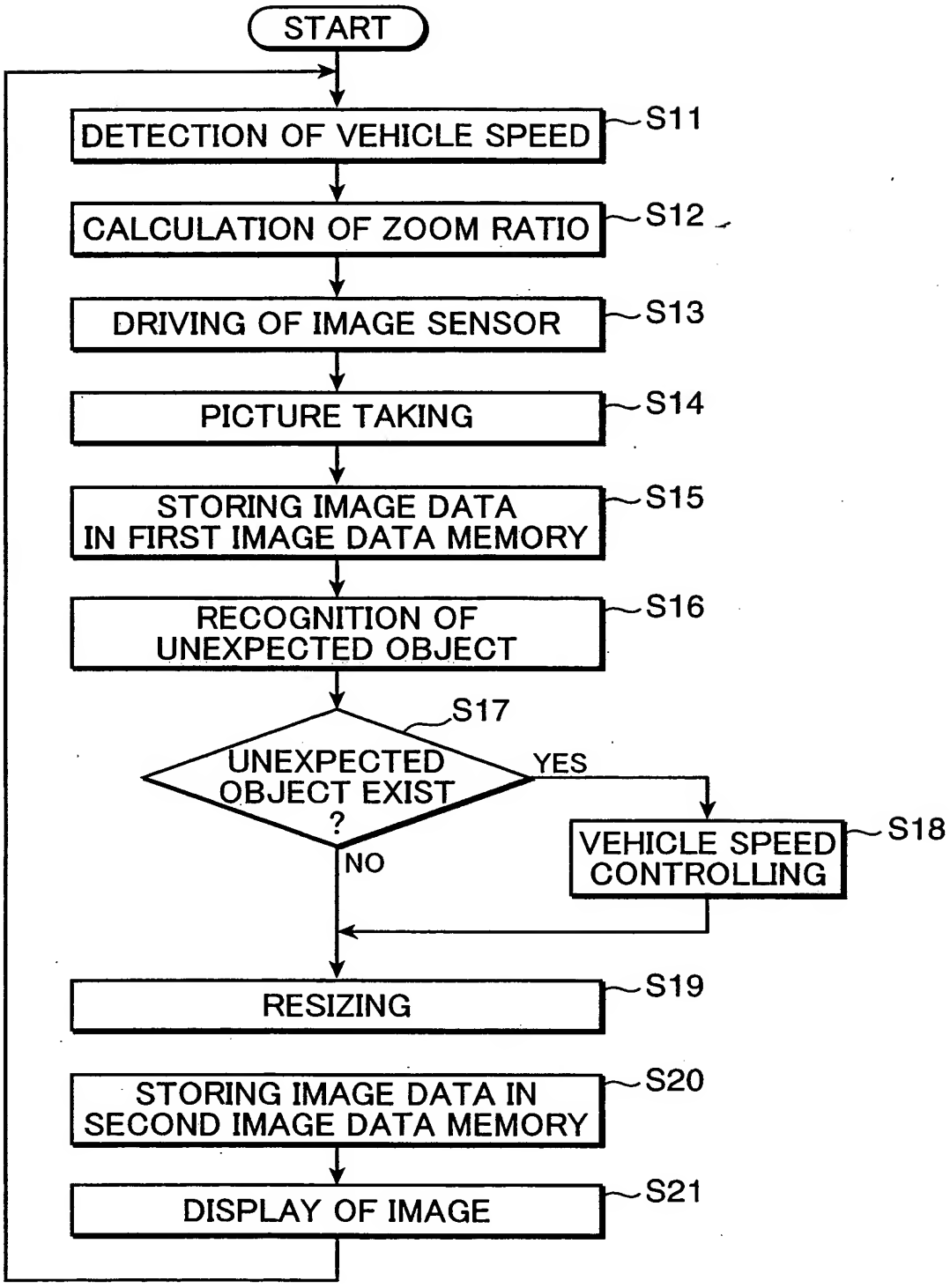

START
DETECTION OF VEHICLE SPEED
S11
CALCULATION OF ZOOM RATIO
S12
DRIVING OF IMAGE SENSOR
S13
PICTURE TAKING
S14
STORING IMAGE DATA IN FIRST IMAGE DATA MEMORY
S15
RECOGNITION OF UNEXPECTED OBJECT
S16
S17
UNEXPECTED OBJECT EXIST ?
YES
NO
VEHICLE SPEED CONTROLLING
S18
RESIZING
S19
STORING IMAGE DATA IN SECOND IMAGE DATA MEMORY
S20
DISPLAY OF IMAGE
S21

FIG. 6

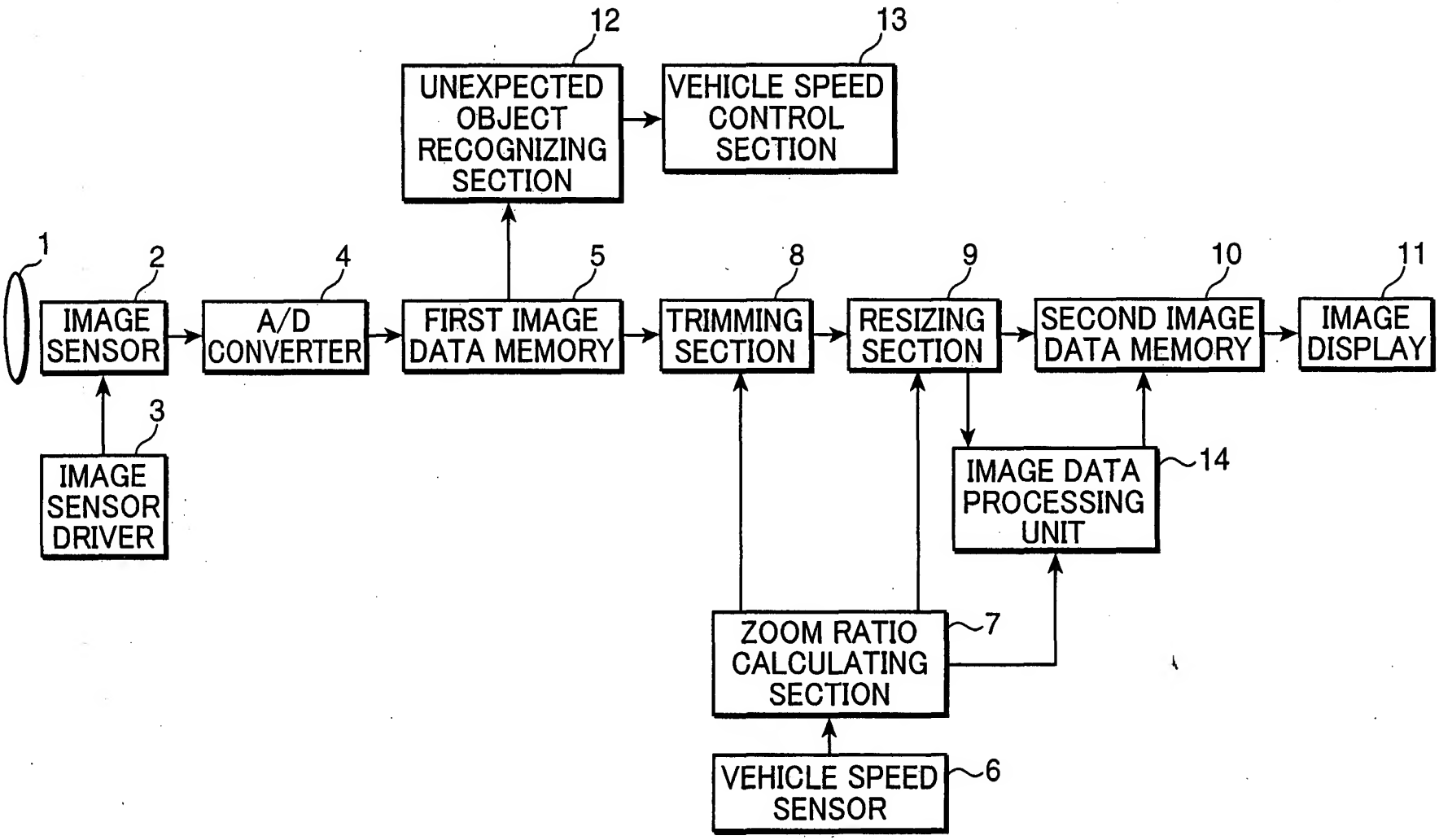

12
13
UNEXPECTED OBJECT RECOGNIZING SECTION
VEHICLE SPEED CONTROL SECTION
1
2
4
5
8
9
10
11
IMAGE SENSOR
A/D CONVERTER
FIRST IMAGE DATA MEMORY
TRIMMING SECTION
RESIZING SECTION
SECOND IMAGE DATA MEMORY
IMAGE DISPLAY
3
IMAGE SENSOR DRIVER
IMAGE DATA PROCESSING UNIT
14
ZOOM RATIO CALCULATING SECTION
7
VEHICLE SPEED SENSOR
6

FIG. 7

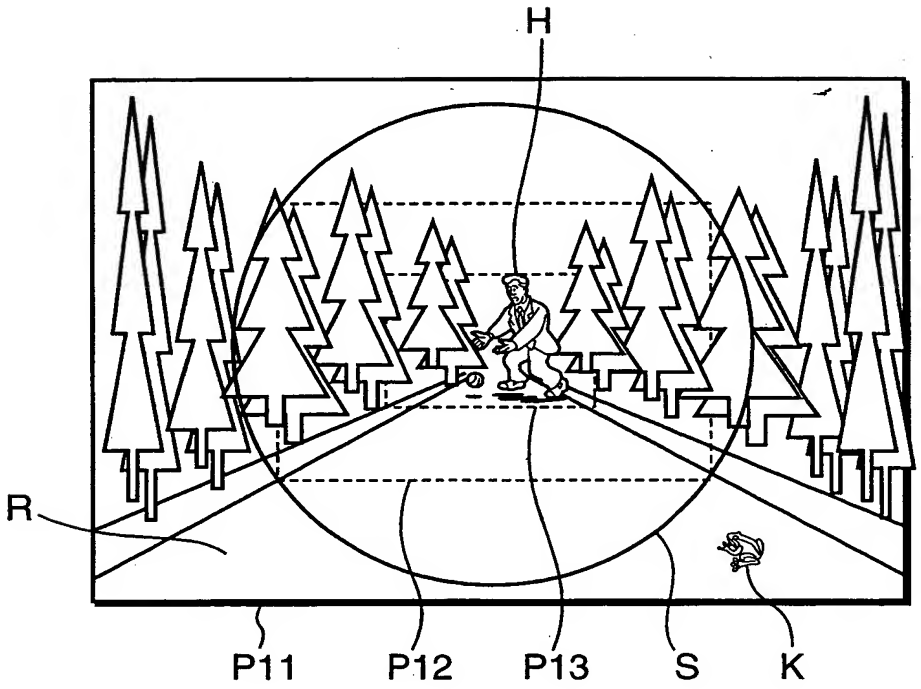


FIG. 8

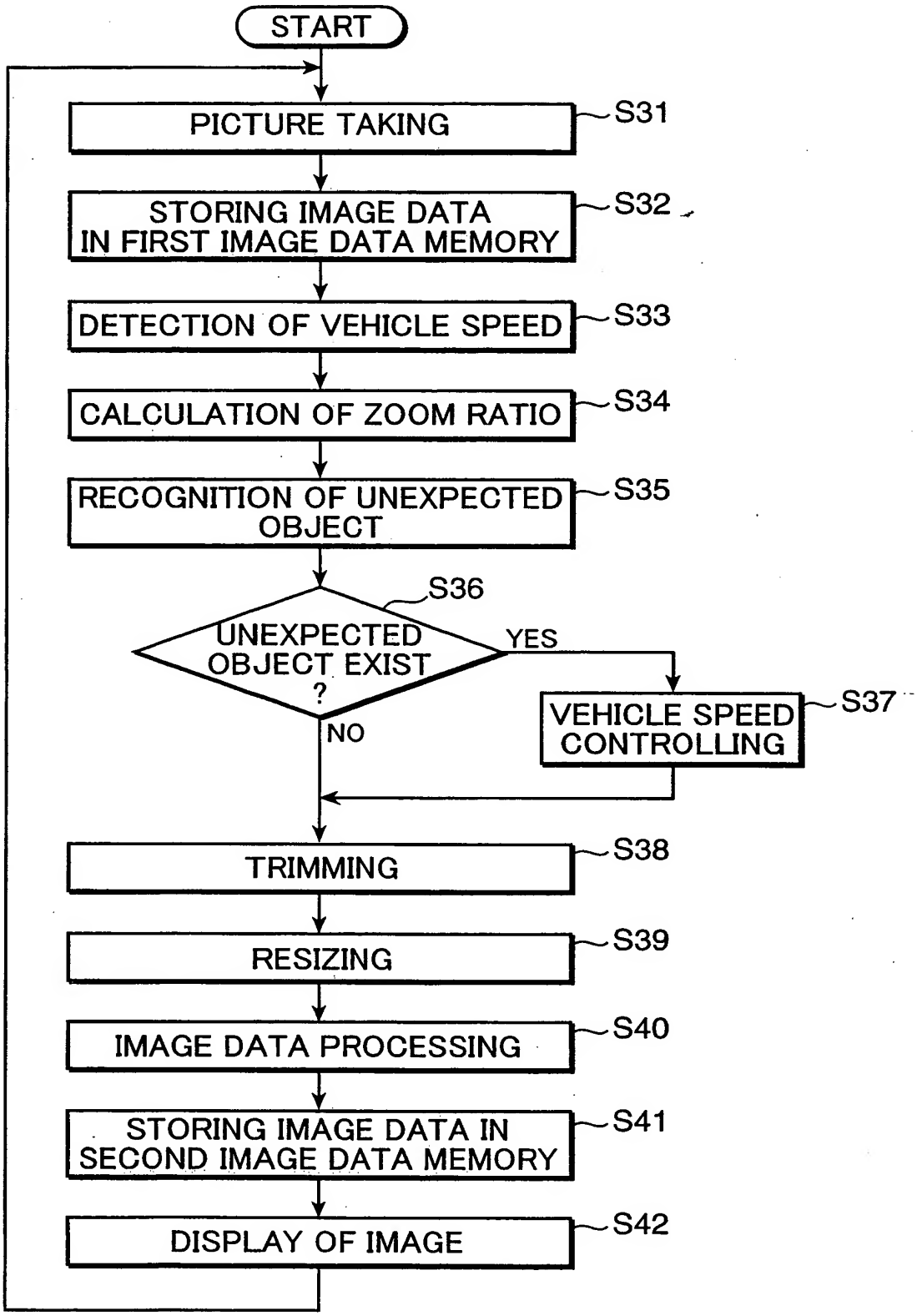

START
PICTURE TAKING
S31
STORING IMAGE DATA IN FIRST IMAGE DATA MEMORY
S32
DETECTION OF VEHICLE SPEED
S33
CALCULATION OF ZOOM RATIO
S34
RECOGNITION OF UNEXPECTED OBJECT
S35
S36
UNEXPECTED OBJECT EXIST ?
YES
NO
VEHICLE SPEED CONTROLLING
S37
TRIMMING
S38
RESIZING
S39
IMAGE DATA PROCESSING
S40
STORING IMAGE DATA IN SECOND IMAGE DATA MEMORY
S41
DISPLAY OF IMAGE
S42

FIG. 9

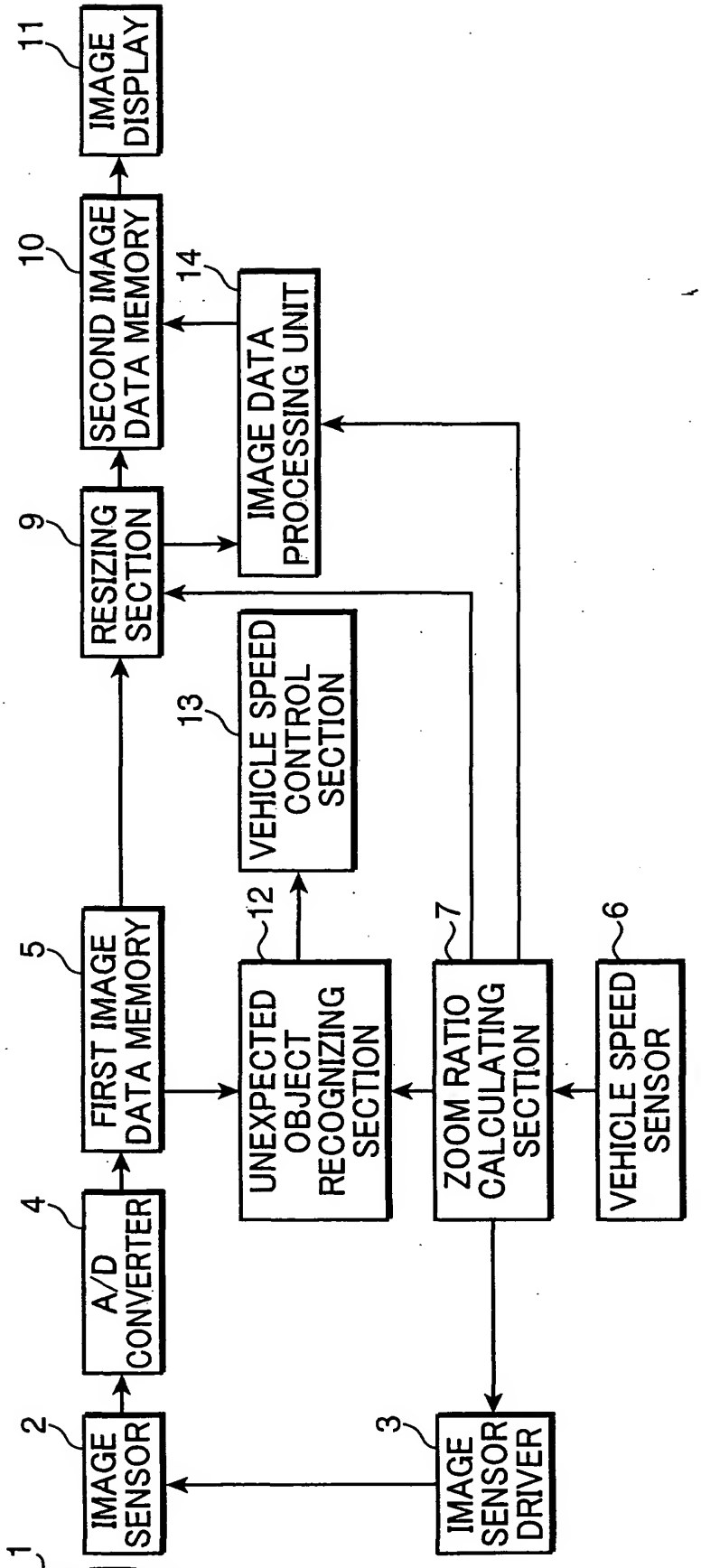

1
IMAGE SENSOR
2
A/D CONVERTER
4
FIRST IMAGE DATA MEMORY
5
RESIZING SECTION
9
SECOND IMAGE DATA MEMORY
10
IMAGE DISPLAY
11
IMAGE DATA PROCESSING UNIT
14
VEHICLE SPEED CONTROL SECTION
13
UNEXPECTED OBJECT RECOGNIZING SECTION
12
ZOOM RATIO CALCULATING SECTION
7
VEHICLE SPEED SENSOR
6
IMAGE SENSOR DRIVER
3

FIG. 10

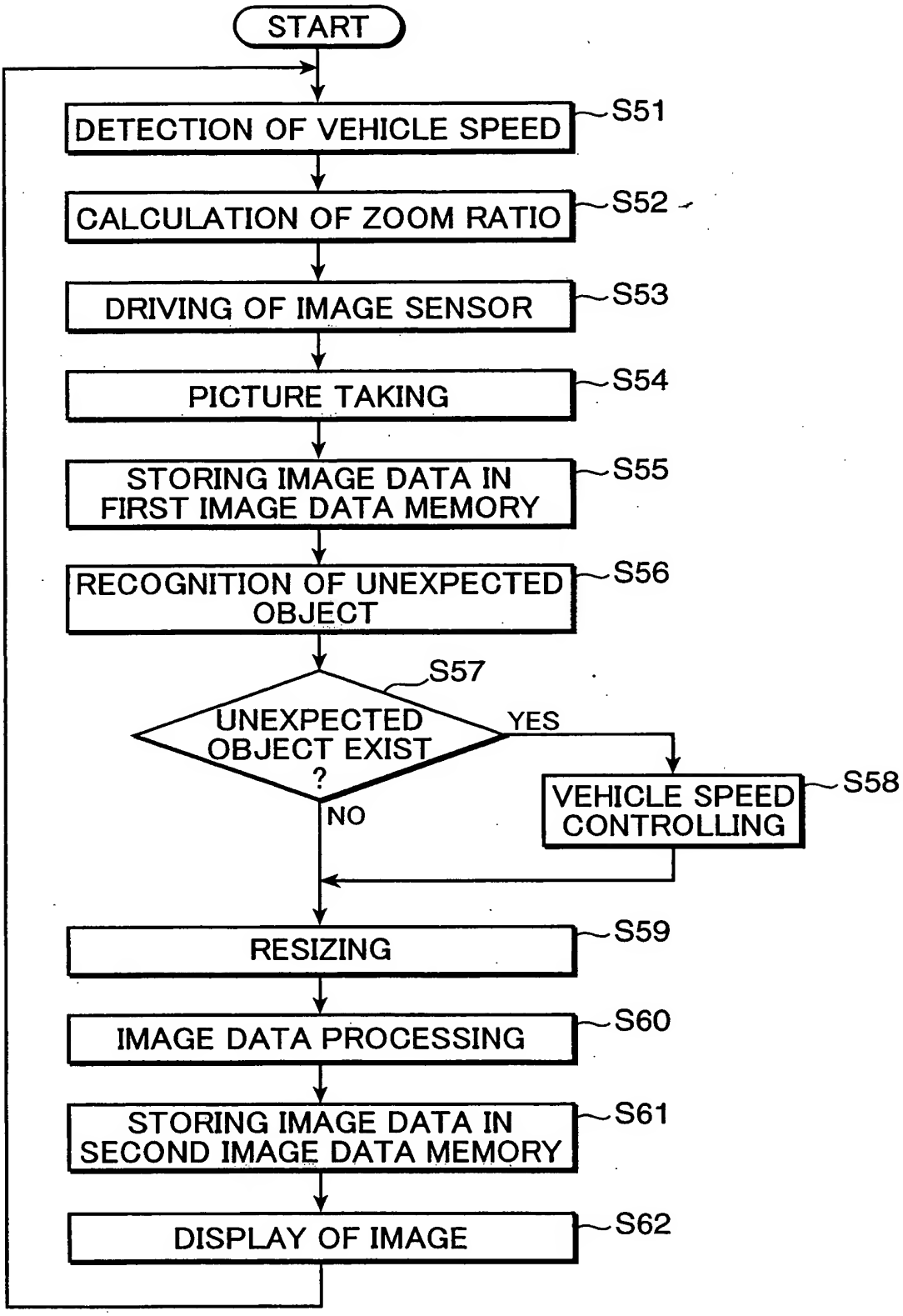

START
DETECTION OF VEHICLE SPEED
S51
CALCULATION OF ZOOM RATIO
S52
DRIVING OF IMAGE SENSOR
S53
PICTURE TAKING
S54
STORING IMAGE DATA IN FIRST IMAGE DATA MEMORY
S55
RECOGNITION OF UNEXPECTED OBJECT
S56
S57
UNEXPECTED OBJECT EXIST ?
YES
NO
VEHICLE SPEED CONTROLLING
S58
RESIZING
S59
IMAGE DATA PROCESSING
S60
STORING IMAGE DATA IN SECOND IMAGE DATA MEMORY
S61
DISPLAY OF IMAGE
S62

FIG. 11

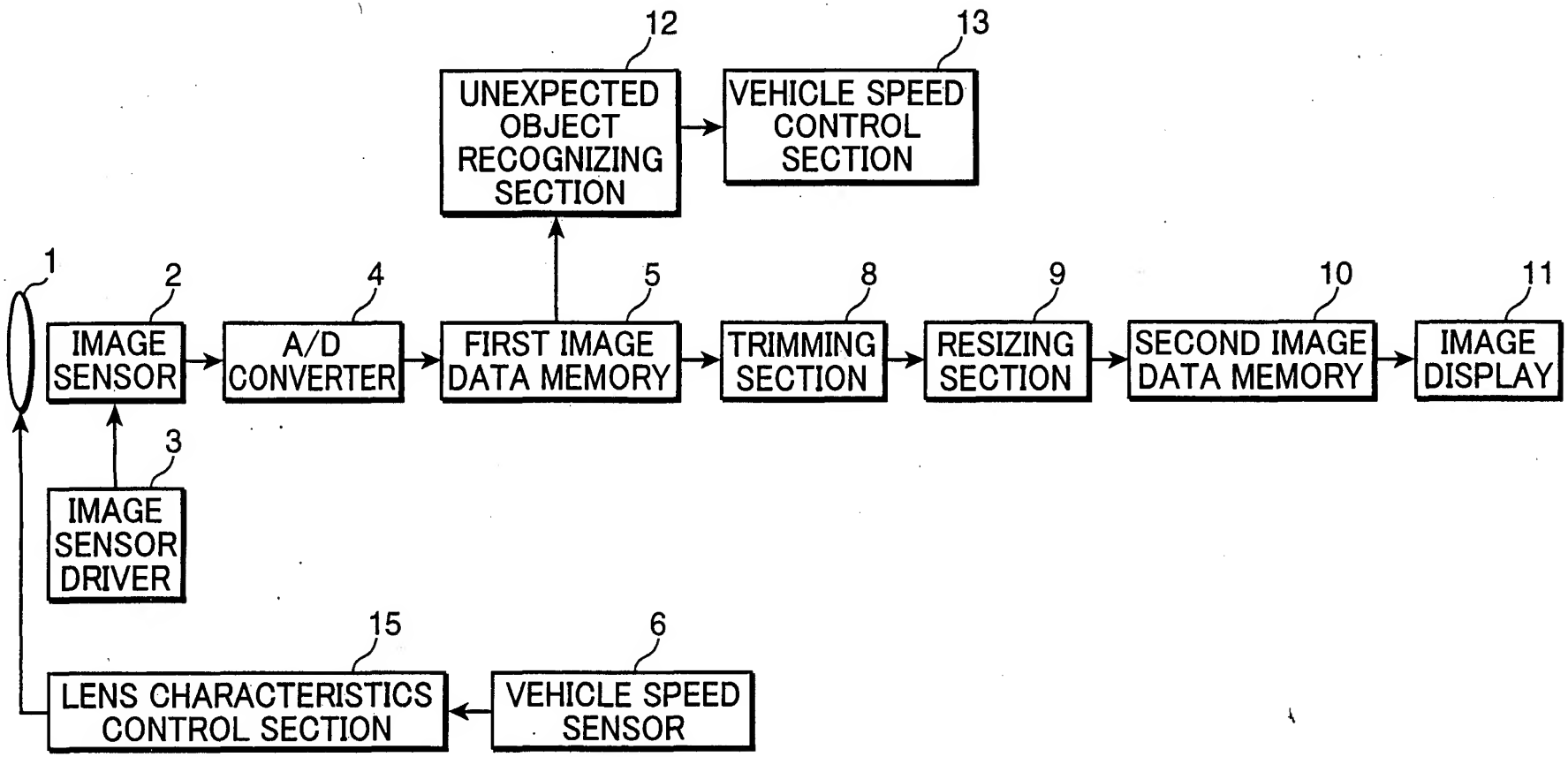
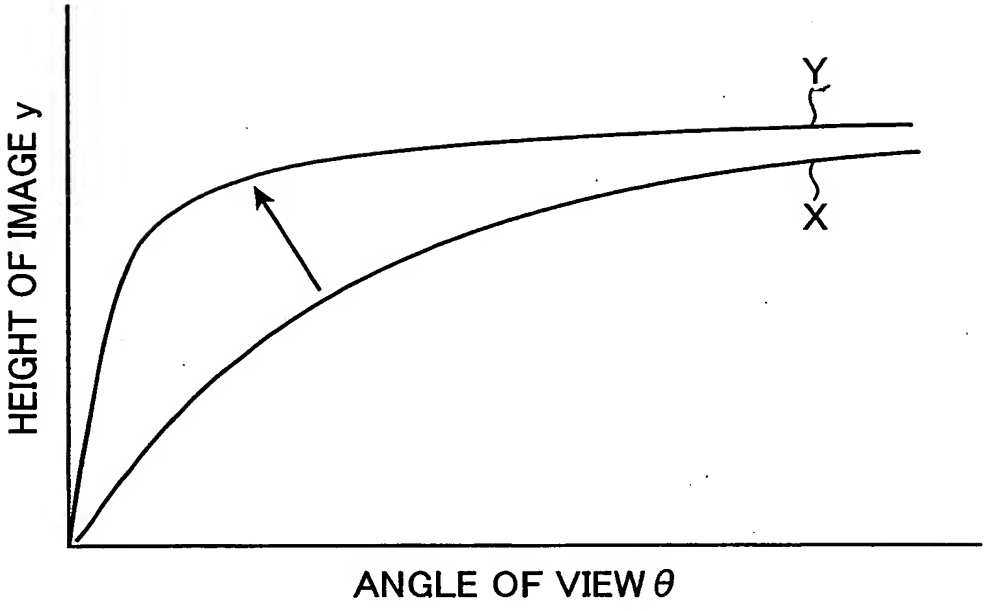

12
13
UNEXPECTED OBJECT RECOGNIZING SECTION
VEHICLE SPEED CONTROL SECTION
1
2
4
5
8
9
10
11
IMAGE SENSOR
A/D CONVERTER
FIRST IMAGE DATA MEMORY
TRIMMING SECTION
RESIZING SECTION
SECOND IMAGE DATA MEMORY
IMAGE DISPLAY
3
IMAGE SENSOR DRIVER
15
6
LENS CHARACTERISTICS CONTROL SECTION
VEHICLE SPEED SENSOR

FIG. 12



CHARACTERISTICS OF FOVEA LENS

FIG. 13

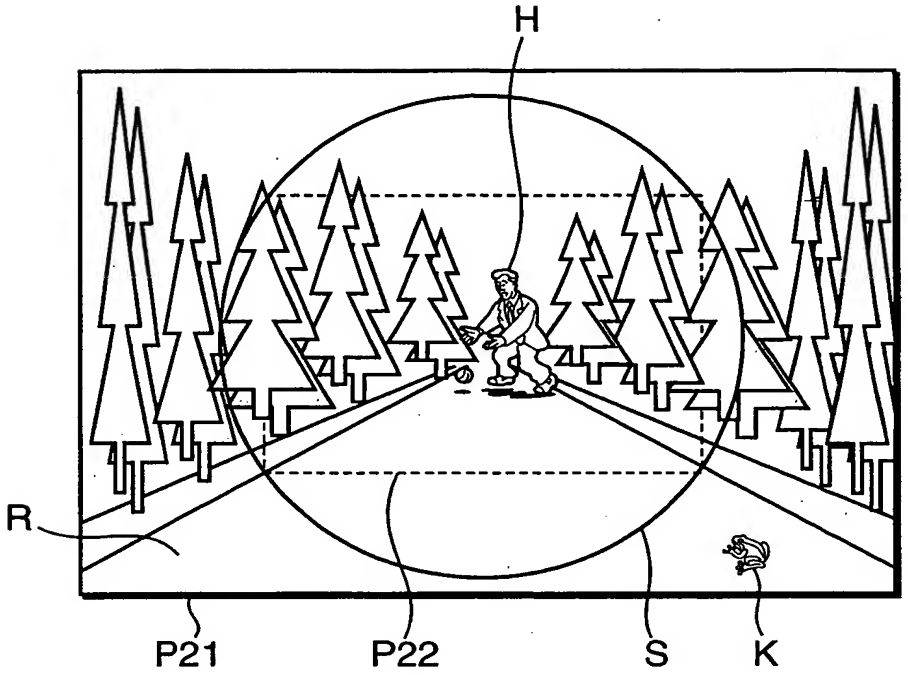


FIG. 14

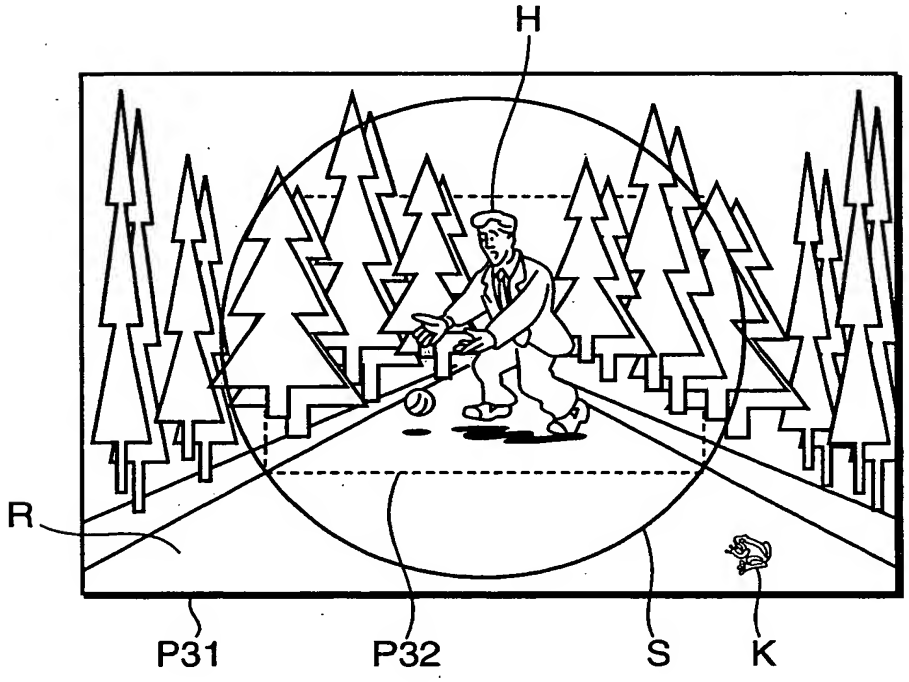


FIG. 15

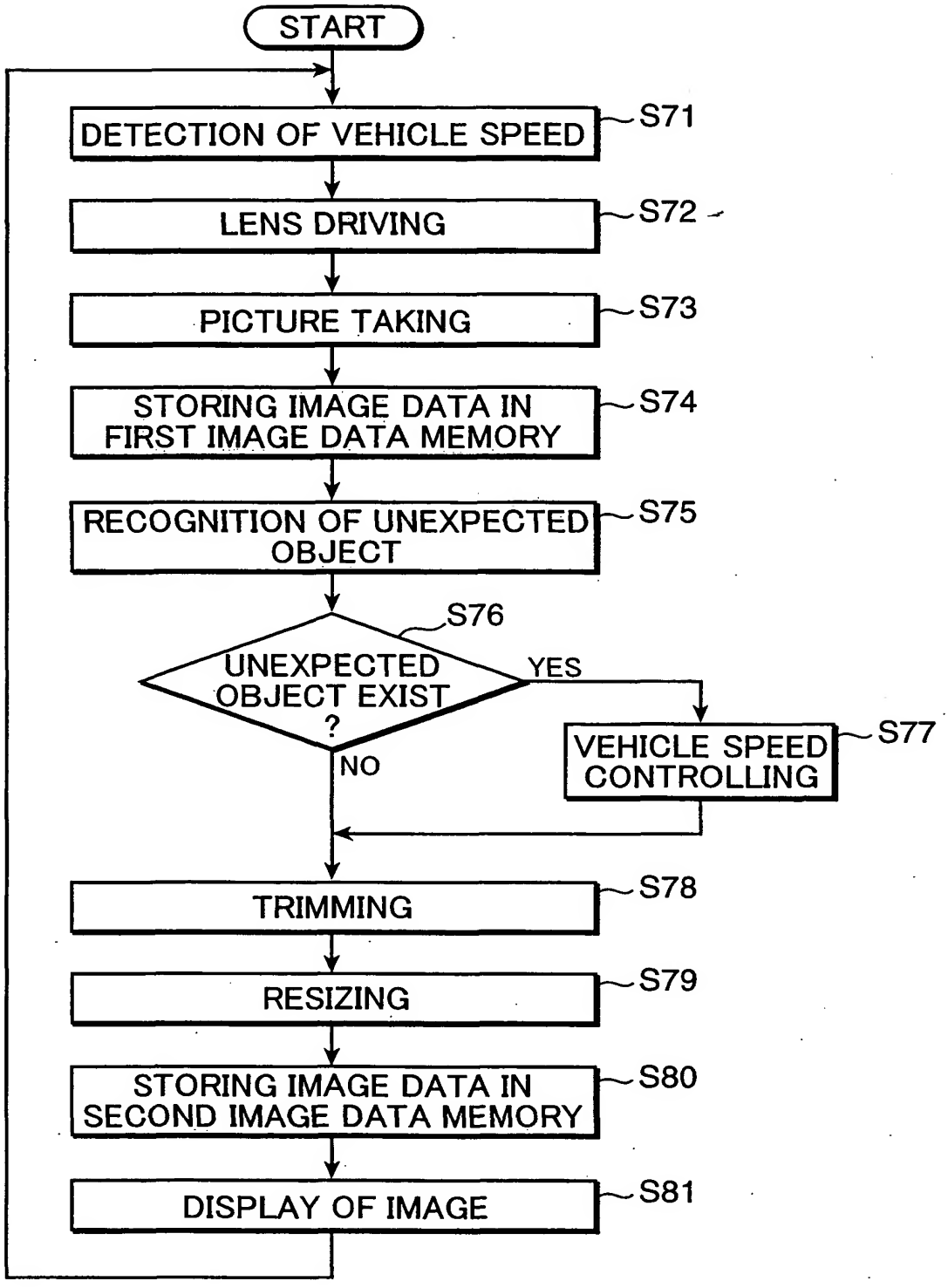

START
DETECTION OF VEHICLE SPEED
S71
LENS DRIVING
S72
PICTURE TAKING
S73
STORING IMAGE DATA IN FIRST IMAGE DATA MEMORY
S74
RECOGNITION OF UNEXPECTED OBJECT
S75
S76
UNEXPECTED OBJECT EXIST ?
YES
NO
VEHICLE SPEED CONTROLLING
S77
TRIMMING
S78
RESIZING
S79
STORING IMAGE DATA IN SECOND IMAGE DATA MEMORY
S80
DISPLAY OF IMAGE
S81

FIG. 16

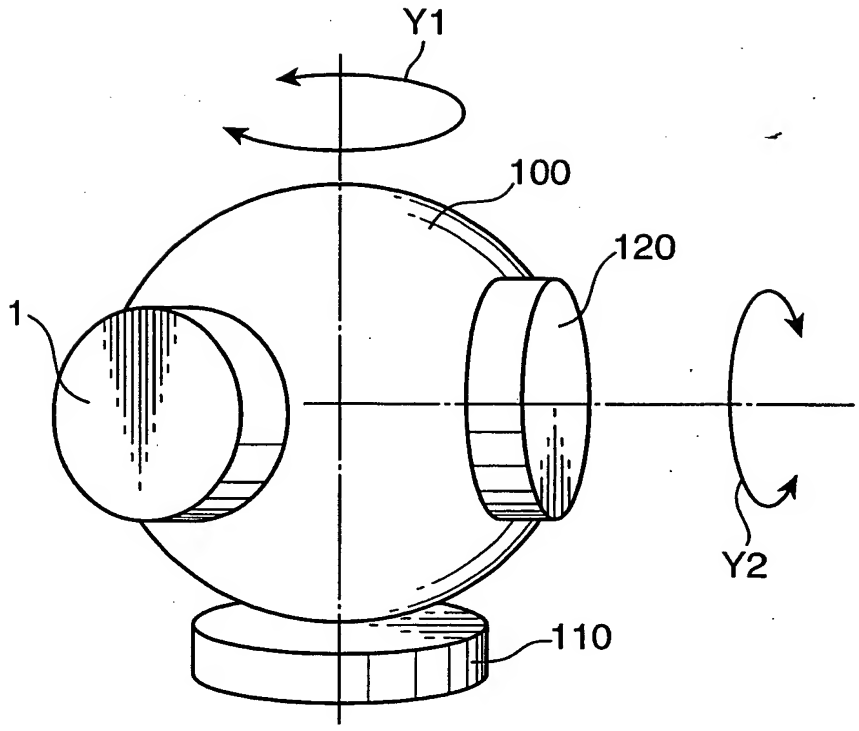
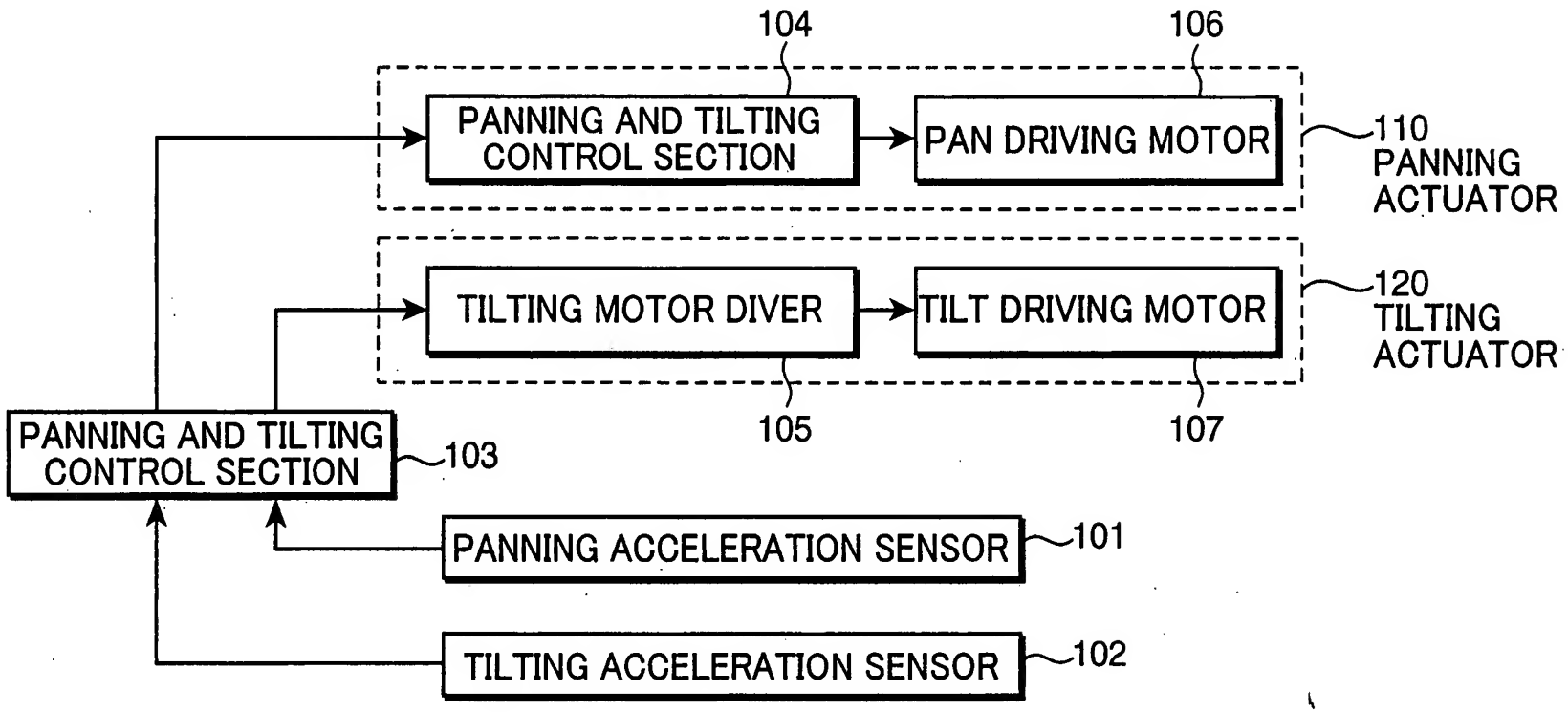


FIG. 17


104
106
PANNING AND TILTING CONTROL SECTION
PAN DRIVING MOTOR
110 PANNING ACTUATOR
TILTING MOTOR DIVER
TILT DRIVING MOTOR
120 TILTING ACTUATOR
105
107
PANNING AND TILTING CONTROL SECTION
103
PANNING ACCELERATION SENSOR
101
TILTING ACCELERATION SENSOR
102